UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/528,117	03/17/2000	Naoaki Kodaira	016907/1080	4095

22428 7590 08/05/2003

FOLEY AND LARDNER
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER
DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/528,117	KODAIRA ET AL.	
	Examiner	Art Unit	
	Mehrdad Dastouri	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-20,22 and 25-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-20,22 and 25-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8, 10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Applicants' amendment filed May 23, 2003, has been entered and made of record.

2. Objection to Claims 14-16, 19, 20, 35-37, 40 and 41 has been withdrawn in view of Applicants' amendment.

3. 35 U.S.C. 112 rejection of Claims 16 and 37 have been withdrawn in view of Applicants' amendment.

4. Applicants' arguments have been fully considered but they are not persuasive. Applicants argue in essence that prior arts of record (Tamagaki and Nakkiran et al) do not disclose converting at least one of resolution, compression rate, and number of colors of the image data, depending on the type determined by the determining means. The Examiner disagrees and indicates that as it specified in previous Office Action (Paper # 6), Nakkiran et al disclose means for converting the resolution of the image data, depending on the type of the image data determined based on the extracted features of the image (Figures 1 and 2A; Column 5, Lines 11-38).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 4-15, 19, 20, 22, 25-36 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamagaki (U.S. 5,999,646) in view of Nakkiran et al (U.S. 6,134,567).

Regarding Claim 1, Tamagaki discloses an image processing apparatus comprising:

input means for inputting image data of an original image (Figure 2, Scanning Unit 2; Column 6, Lines 64-67, Column 7, Lines 1-2);

discriminating means for extracting a predetermined region by using a feature of pixel of the image data input from the input means, and for discriminating an attribute of the region (Figure 3, Histogram-processing Section 70b; Column 8, Lines 5-12);

determining means for, on the basis of the distribution of the regions attribute of which discriminated by the discriminating means,

determining the type of the image data as at least one type selected from the group consisting of image data of uniform background, image data of dot background in the entire screen, image data of dot photo only, image data of continuous gradation photo only, image data of which region can be discriminated by rectangle, and image data of which region cannot be discriminated by rectangle (Figures 1A-1C and 3, Histogram-processing Section 70b, Image-Processing Unit 71; Column 10, Lines 42-67, Column 11, Lines 1-13. The type of the image is determined, based on the histogram data, as text document or tone photos.).

Tamagaki do not explicitly disclose means for converting at least one of resolution, compression rate, and number of colors of the image data, depending on the type determined by the determining means.

Nakkiran et al disclose a printer device driver system for high resolution alphanumeric character generation including means for converting the resolution of the image data, depending on the type of the image data determined based on the extracted features of the image (Figures 1 and 2A; Column 5, Lines 11-38).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tamagaki's invention according to the teachings of Nakkiran et al to convert at least one of resolution, compression rate, and number of colors of the image data, depending on the type determined by the determining means because it will separate resolution of the discriminated regions of the image data such as alphanumeric character text and color graphics to provide maximum flexibility and highest print quality (Nakkiran et al; Column 4, Lines 17-21).

Regarding Claim 4, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

correcting means for correcting the image data by performing at least one of density conversion and filter processing, depending on the type determined by the determining means (Figure 3Column 7, Lines 52-67, Column 8, Lines 1-53).

Regarding Claim 5, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

changing means for changing the image format of the image data, depending on the type determined by the determining means (Figures 3 and 5; Column 12, Lines 11-67).

Regarding Claim 6, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

processing means for selecting an application of image processing, depending on the type determined by the determining means, setting a parameter, and starting this application to perform image processing of the image data (Figures 1 and 3; Column 10, Lines 32-67, Column 11, Lines 1-60).

Regarding Claim 7, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

means for performing specified processing on the basis of the attribute of the region discriminated by the discriminating means, on the image data in every region, when the determining result by the determining means is a specified result (Figures 1 and 3; Column 10, Lines 32-67, Column 11, Lines 1-60).

Regarding Claim 8, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

second discriminating means for discriminating the image type of the image data received from the input means in pixel unit, when the determining result by the determining means is a specified result (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 26-53); and

second processing means for processing the image data as specified, on the basis of the result discriminated by the second discriminating means (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 54-67, Column 9, Lines 1-20; Column 15, Lines 15-49).

Regarding Claim 9, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

setting means for setting for pixel unit discriminating process on the basis of the determining result by the determining means (Figure 4, Function-setting 113; (Column 9, Lines 56-67, Column 10, Lines 1-9);

second discriminating means for discriminating the image type of the image data received from the input means in pixel unit on the basis of the setting by the setting means, when the determining result by the determining means is a specified result (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 26-53); and

second processing means for processing the image data as specified, on the basis of the result discriminated by the second discriminating means (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 54-67, Column 9, Lines 1-20; Column 15, Lines 15-49).

Regarding Claim 10, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

second discriminating means for discriminating the image type of the image data received from the input means in pixel unit, when the determining means determines that it takes more than a specified time for determining (Figure 5; Column 15, Lines 36-67, Column 16, Lines 1-21); and

second processing means for processing the image data as specified, on the basis of the result discriminated by the second discriminating means (Figure 5; Column 15, Lines 49-67, Column 16, Lines 1-21).

Regarding Claim 11, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

second discriminating means for determining the discrimination precision of the discriminating means, and when the discrimination precision is below a specific value, discriminating the image type of the image data received from the input means in pixel unit (Figure 5; Column 15, Lines 36-67, Column 16, Lines 1-21); and

second processing means for processing the image data as specified, on the basis of the result discriminated by the second discriminating means .

Regarding Claim 12, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

second discriminating means for determining the complicatedness of the discriminating means, and when the complicatedness is above a specific value, discriminating the image type of the image data received from the input means in pixel unit (Figure 5; Column 15, Lines 36-67, Column 16, Lines 1-21); and

second processing means for processing the image data as specified, on the basis of the result discriminated by the second discriminating means (Figure 5; Column 15, Lines 36-67, Column 16, Lines 1-21).

Regarding Claim 13, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

storing means for receiving the image data from the input means, performing a first process on the image data parallel to the determining process of the determining means to obtain a first result (Figure 3, Histogram Processing), further performing a second process different from the first process to obtain a second result, and storing them in a memory region (Figure 3, Error-Scattering, Compressing, etc.; Column 7, Lines 52-67, Column 8, Column 9, Lines 1-2); and

means for reading out and outputting either one of the first result and second result from the storing means on the basis of the determining result of the determining means (Figure 3,Output Unit 72; Column 9, Lines 3-28).

Regarding Claim 14, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

means for discriminating the structure of the background from the extracted region, and judging the type of the image data on the basis thereof (Column 10, Lines 42-56).

Regarding Claim 15, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

means for judging presence or absence of character from the distribution of attribute in each region discriminated by the discriminating means, and judging the type of the image data on the basis thereof (Column 10, Lines 42-56).

Regarding Claim 19, Tamagaki further discloses an image processing apparatus according to Claim 1, further comprising:

judging means for judging the type of the image data, regardless of the content of the original mode given from the user, on the basis of the distribution of the attribute of each region discriminated by the discriminating means (Column 13, Lines 6-31).

Regarding Claim 20, disclose an image processing apparatus according to Claim 1, further comprising:

second discriminating means for discriminating the image information of the image data received from the input means in the pixel unit according to the judging result when the judging result by the judging means is the specified result (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 26-53); and

second processing means for processing the image data as specified on the basis of the discrimination result discriminated by the second discriminating means (Figures 1A, 1B, 3 and 4, ; Column 8, Lines 54-67, Column 9, Lines 1-20; Column 15, Lines 15-49).

With regards to Claim 22, arguments analogous to those presented for Claim 1 are applicable to Claim 22.

With regards to Claim 25, arguments analogous to those presented for Claim 4 are applicable to Claim 25.

With regards to Claim 26, arguments analogous to those presented for Claim 5 are applicable to Claim 26.

With regards to Claim 27, arguments analogous to those presented for Claim 6 are applicable to Claim 27.

With regards to Claim 28, arguments analogous to those presented for Claim 7 are applicable to Claim 28.

With regards to Claim 29, arguments analogous to those presented for Claim 8 are applicable to Claim 29.

With regards to Claim 30, arguments analogous to those presented for Claim 9 are applicable to Claim 30.

With regards to Claim 31, arguments analogous to those presented for Claim 10 are applicable to Claim 31.

With regards to Claim 32, arguments analogous to those presented for Claim 11 are applicable to Claim 32.

With regards to Claim 33, arguments analogous to those presented for Claim 12 are applicable to Claim 33.

With regards to Claim 34, arguments analogous to those presented for Claim 13 are applicable to Claim 34.

With regards to Claim 35, arguments analogous to those presented for Claim 14 are applicable to Claim 35.

With regards to Claim 36, arguments analogous to those presented for Claim 15 are applicable to Claim 36.

With regards to Claim 40, arguments analogous to those presented for Claim 19 are applicable to Claim 40.

With regards to Claim 41, arguments analogous to those presented for Claim 20 are applicable to Claim 41.

With regards to Claim 42, arguments analogous to those presented for Claim 1 are applicable to Claim 42. Tamagaki further discloses image forming means for forming an image on a recorded medium on the basis of the image data processed as specified by the processing means (Figure 3, Image Output Unit 72; Column 9, Lines 3-27).

7. Claims 16 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamagaki (U.S. 5,999,646) further in view of Nakao et al (U.S. 6,141,443).

Regarding Claim 16, neither Tamagaki nor Nakkiran et al disclose an image processing apparatus according to Claim 1, further comprising:

judging means for judging the rectangle information and the type of the image data on the basis of the distribution of the attribute in each region discriminated by the discriminating means.

Nakao et al disclose a character extraction apparatus comprising

judging means for judging the rectangle information and the type of the image data on the basis of the distribution of the attribute in each region discriminated by the discriminating means (Figures 56-58; Column 40, Lines 36-67, Column 41, Lines 1-24); and

processing means for processing the data as specified on the basis of rectangle information and the type of the image data judged by the judging means (Figures 56-58; Column 41, Lines 25-33).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tamagaki and Nakkiran et al combination according to

the teachings of Nakao et al to judge rectangle information and the type of the image data on the basis of the distribution of the attribute in each region discriminated by the discriminating means because it will enhance the output result and will improve the overall image processing for different applications including character recognition.

With regards to Claim 37, arguments analogous to those presented for Claim 16 are applicable to Claim 37.

8. Claims 17, 18, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamagaki (U.S. 5,999,646) in view of Nakkiran et al (U.S. 6,134,567) and Fan et al (Segmentation and Classification of Mixed Text/Graphics/Image Documents).

Regarding Claim 17, neither Tamagaki nor Nakkiran et al disclose means for discriminating the page information which is the image type of each page of the original image of the image data when the discriminating means cannot divide the image data into a plurality of rectangular regions, and determining the type of the image data on the basis thereof.

Fan et al disclose an image processing apparatus comprising:

means for discriminating the page information which is the image type of each page of the original image of the image data when the discriminating means cannot divide the image data into a plurality of rectangular regions, and determining the type of the image data on the basis thereof (Section 2, Pages 1202-1204).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tamagaki and Nakkiran et al combination according to

the teachings of Fan et al to implement further limitations of Claim 17 because it will enhance the output result of the page labeling and will increase the accuracy of text and graphics classification in page layout processing.

With regards to Claim 18, arguments analogous to those presented for Claims 12 and 17 are applicable to Claim 18.

With regards to Claim 38, arguments analogous to those presented for Claim 17 are applicable to Claim 38.

With regards to Claim 39, arguments analogous to those presented for Claim 18 are applicable to Claim 39.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438.

The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the T.C. Customer Service Office whose telephone number is (703) 306-0337.

Mehrdad Dastouri

Mehrdad Dastouri
Primary Examiner
Group Art Unit 2623
August 4, 2003